ISO 20321:2020-03 (E)

Petroleum, petrochemical and natural gas industries - Safety of machineries - Powered elevators

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Termsanddefinitions 2

4 Abbreviated terms 5

5 Safety requirements and/or protective/risk reduction measures 5
5.1 General requirements for powered elevators 5
5.2 Mechanical strength 5
5.3 Safety design of powered elevators 5
5.3.1 General 5
5.3.2 Ergonomic design 5
5.3.3 Fastening methods and DROPS prevention of parts 5
5.3.4 Suspension points 6
5.3.5 Moving parts, pinch points and guards 6
5.4 Other protective measures 7
5.4.1 Risks due to surfaces, edges or angles 7
5.4.2 Size and type verification (errors of fitting) 7
5.4.3 Static electricity 7
5.4.4 Loss of stability 7
5.4.5 Explosion prevention 7
5.4.6 Controls 7
5.4.7 Elevator coating 7
5.4.8 Noise 8
5.5 Specific risks for powered elevators 8
5.5.1 General 8
5.5.2 External power source 8
5.5.3 Feedback signals 8
5.5.4 Danger zone 8
5.6 Stops for an assembly of machinery 9
5.6.1 General 9
5.6.2 Start of the movement 9
5.6.3 Normal stop 9
5.6.4 Operational stop 9
5.6.5 Emergency shutdown 9
5.7 Failure of power supply 10
5.8 Verification of safety requirements and/or protective/risk reduction measures 10
5.8.1 General 10
5.8.2 Service life 10
5.8.3 Fatigue life 10
5.8.4 Maintenance 10

6 Functions for preparing the elevator for a safe lift -- Wrapping, securing, locking andverification 10
6.1 General 10

6.2 Black box approach 11
6.3 Wrapping 11
6.4 Securing 12
6.5 Locking 13
6.6 Verification of readiness for safe lift 13

7 Closed-ring powered elevator 14
7.1 Wrapping 14
7.2 Securing and locking 14
7.3 Verification 14

8 Instructions for use 14
8.1 General 14
8.2 Instruction handbook 14

9 Marking of powered elevators 17

Annex A (informative) Relation between the clauses of European Directive on machinery (Directive 2006/42/EC) and this document 19

Annex B (normative)Verificationtestsforpoweredelevators 23

Bibliography 25